

## UNIVERSAL MANDREL

## ABSTRACT OF THE DISCLOSURE

[0023] A universal mandrel includes a core mandrel having an outside diameter, and at least one adapter sleeve having an inside diameter sized to engage the core mandrel outside diameter. An interlocking mechanism is secured between the core mandrel and the at least one adapter sleeve. The interlocking mechanism serves to prevent the adapter sleeve from rotating relative to the core mandrel. The design allows a prototype composite ring to be filament wound even though the final ring diameter would be subject to change.